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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,671	12/26/2001	Douglas N. Curry	101256.01	8406

7590 07/22/2002

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EXAMINER

DO, ANH HONG

ART UNIT	PAPER NUMBER
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2624

DATE MAILED: 07/22/2002

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
10/025,671

Applicant(s)

Curry

Examiner

Anh Hong Do

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 13-17 is/are rejected.
- 7) ☒ Claim(s) 10-12 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on Mar 13, 2002 is/are a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 4 6) ☐ Other:

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DETAILED ACTION

Drawings

1. The corrected or substitute drawings were received on 3/13/2002. These drawings are acceptable.

Claim Rejections - 35 USC § 112

2. Claim 16 is rejected under 35 U.S.C. 112, first paragraph, because a single means claim, i.e., where a means recitation does not appear in combination with another recited elements of means, is subjected to an undue breadth rejection under 35 U.S.C. 112, first paragraph. *In re Hyatt*, 708.F 2d 712, 714-715, 218 USPQ 195, 197 (Fed. Circ. 1983). When claims depend on a recited property a fact situation comparable to *Hyatt* is possible, where the claim covers every conceivable structure (means) for achieving the stated property while the specification discloses at most only those known to the inventor. See M.P.E.P. 2164.08(a).

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 7 recites the limitations "the segmentation bit" in line 3, "the direction bit" in line 5, "the first and second pixels" in line 6, "the three bit value" in lines 7 and 8. There are insufficient antecedent basis for these limitations in the claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claims 1, 3-6, 8, 9, and 15-17 are rejected under 35 U.S.C. 102(a) as being anticipated by Honma *et al.* (U.S. Patent No. 5,774,634).

Regarding claim 1, Honma discloses:

- decompressing data from the compressed data bitword to provide data indicative of the plurality of explicit pixels (Fig. 4: decompressing data by decode ckt 12);

- synthesizing data from the compressed data bitword to provide data corresponding to a synthesized pixel (Fig. 4: synthesizing data by image synthesis unit 6).

Regarding claim 3, Honma discloses decompressing the non-continuous data with high resolution in one dimension into a high resolution bitmap (Fig. 4: bitmap development unit 3, decode ckt 12 and image synthesis unit 6).

Regarding claim 4, Honma teaches:

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- identifying a bit word as continuous tone data

Regarding claim 5, Honma teaches bitwords of information corresponding to discarded non-continuous tone data are synthesized (Fig. 4: image synthesis unit 6).

Regarding claim 6, Honma discloses each of bitwords are bytes (col. 24, lines 21-23).

Regarding claim 8, Honma teaches synthesizing the data is performed in either a fastscan direction or a slowscan direction based on a direction bit contained that bitword (Fig. 13: main-scan direction or sub-scan direction).

Regarding claim 9, Honma discloses determining which pixel positions are to be synthesized during decompression based on the direction bit (col. 20, lines 10-13).

Regarding claim 15, Honma discloses:

- a decompressor that decompresses a data bitword map to provide high spatial resolution data containing non-continuous tone data using extra resolution across the edges of the marks, and that decompresses the data bitword map to provide low spatial resolution continuous tone data (Fig. 4: decode ckt 12 and col. 1, lines 44-63).

Regarding claims 16 and 17, Honma discloses the image forming device is an ink jet printer (col. 6, lines 50-51).

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

- (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who

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has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

8. Claims 13 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Shannon et al. (U.S. Patent No. 6,026,196).

Regarding claim 13, Shannon discloses:

- decompressing a single byte of compressed data to produce 4 pixels of non-continuous tone data (col. 10, lines 43-46).

Regarding claim 14, Shannon teaches:

- transmitting the byte of data to a print engine (col. 9, lines 26-28);
- extracting data necessary to render two non-continuous tone data pixels and fabricating two more non-continuous tone data pixels in a low spatial resolution direction based on a set of values of the extracted data (col. 10, lines 43-46).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honma et al. (U.S. Patent No. 5,774,634).

Regarding claim 2, although Honma does not specifically teach that decompressing a quantity of non-continuous tone data is increased to approximately 4 times of a quantity of uncompressed non-continuous tone data present in a plurality of bitwords representing a plurality of pixels, such a limitation is merely a matter of design choice and would have been obvious in the method of Honma. Honma teaches that in compression the quantity of data is reduced (or compressed) (col. 14, lines 27-29), and it will be expanded in the decompression step since the expansion circuit performs the reverse operation to that performed by the compression circuit (col. 13, lines 4-6); in other words, the data is increased in decompression step. The limitation in claim 2 does not define a patentably distinct invention over that in Honma since both the invention as a whole and Honma are directed to increasing data. The magnitude in which the data is increased is inconsequential for the invention as a whole and presents no new or unexpected results, so long as the data is successfully increased. Therefore, to have the data quantity in decompression to be increased approximately 4 times of that of the uncompressed data would have been obvious design choice to one of ordinary skill in the art.

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Allowable Subject Matter

11. Claim 7 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Regarding to claim 7, the present invention provides a new method for compression and decompression that at least double the spatial resolution for non-continuous tone data, while maintaining adequate spatial resolution for continuous tone data and minimizing the amount of memory and corresponding transmission bandwidth requirements (specification, page 3, lines 4-8). Particularly, the new method comprising:

- *referencing a segmentation bit of the bitword to determine whether the bitword contains non-continuous tone data;*

- *referencing a direction bit to determine whether the direction of the edge located in spaced relationship to the first and second pixels;*

- *referencing the three bit value indicative of a first pixel;*

- *referencing the three-bit value indicative of the second pixel.*

12. Claims 10-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 10-12, the present invention provides a new method for compression and decompression, in which the high spatial resolution non-continuous tone data is compressed

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by quantizing and packing high resolution pixels in a direction across the edge, i.e., perpendicular to an edge of mark to be rendered, and discarding high resolution pixels along the edge, i.e., parallel to edge; additional information, called tag bits, indicating the directions of edge, i.e., vertical or horizontal directions, and the type of image data, i.e., continuous or non-continuous tone data, is also stored to enable decompression (specification, page 4, lines 4-10). Particularly, the new method comprising:

- *synthesizing the data comprising rendering from each bitword twice as many pixels in a direction perpendicular to an edge indicated by the direction bit of that bitword;*
- *using the three bit value associated with the first pixel and the three bit value associated with the second pixel in the compressed data bitword to determine slope in the slow/fast scan direction to render the horizontal/vertical edge.*

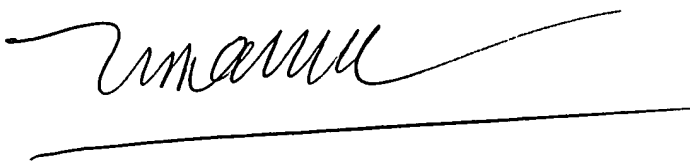
Contact Information

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh Hong Do whose telephone number is (703) 308-6720.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-4700 or 4750.

The fax phone number for this Group is (703) 872-9314.

July 17, 2002.

A handwritten signature in black ink, appearing to read 'Umanu', is written over a horizontal line.